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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,236

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Jimmy Hwee Chew

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01/13/2009

CONLEY ROSE, P.C.

David A. Rose

P. O. BOX 3267

HOUSTON, TX 77253-3267

EXAMINER

HOLLINGTON, JERMELE M

ART UNIT

PAPER NUMBER

2829

NOTIFICATION DATE

DELIVERY MODE

01/13/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pathou@conleyrose.com

Office Action Summary

Application No.

10/533,236

Applicant(s)

CHEW ET AL.

Examiner

Jermele M. Hollington

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed February 29, 2008 have been fully considered but they are not persuasive.

a) The applicants argue: *"Applicants submit that Kazuma does not anticipate claims 1 and 17 of the present application as in the opinion of Examiner. This is because the handler and method is for singulating at least one package substrate into a plurality of packaged semiconductor devices by using a water jet."*

In response to applicant's arguments, the recitation "by using a water jet" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

b) The applicants further argue: *"Hence, the operational functionalities of the transferring means 14 and the fourth transferring means 24 disclosed in Kazuma are completely different from those of the first and second movable mounts of the invention of the present application. Furthermore, Kazuma is intended for used as a standalone system whereas the invention of the present application is to be used as part of an inline system. Applicants respectfully submit that Kazuma is unsuitable for implementation as part of an inline system since the unloading and loading functions are duplicated."*

In response to applicant's argument, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in

order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. MPEP 2114 states that while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function alone. See MPEP 2114.

The applicants also argue: *"Applicants submit that each of claims 2-6 needs to be read in totality in combination with claim 1 when interpreting the claimed invention of the present application. Applicants further submit that although Cole discloses an apparatus and method to cut irregularly shaped die from a wafer using a fluid jet cutting system, it would not have been obvious for a person skilled in the art to combine Kazuma with Cole to arrive at each of claims 2-6. This is because the invention of Cole is specifically used for cutting irregularly shaped dice from a wafer such as planar light-wave circuit device while the invention of Kazuma is used for cutting and transferring of pellets that are cut from a workpiece being worked on. Hence the invention of Kazuma and the invention of Cole are meant for application under different manufacturing situations and it would not have been obvious to combine them to arrive at the invention of the present application. In addition, Cole merely discloses methodologies for cutting irregularly shaped die and the related characteristics of the required supporting materials. In contrast, the invention of the present application teaches the use of the water jet in conjunction with the entire machine for cutting the packaged substrate. Hence, Cole is of a different subject matter with regards to the present application. Furthermore, even after combining Kazuma and Cole, the invention of the present application cannot be obtained due to the fact that the functionalities of the transferring means 14 and the fourth transferring means 24 disclosed in Kazuma are totally different from the first and second movable mounts as disclosed by the invention of the present application."*

In response to applicant's argument that "...it would not have been obvious for a person skilled in the art to combine Kazuma with Cole...", the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary

reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Cole et al used a cutting head assembly because it provides a low cost apparatus to cut dice from a wafer in order to increase the yield of dice from each wafer and reduce the unit cost of fabricating the dice by adding water jet cutting tool.

Therefore, the examiner believes the prior art still reads on the claimed invention.

Specification

2. The disclosure is objected to because of the following informalities: in line 9, insert –This application is a 371 of PCT/SG03/00204 filed on August 29, 2003--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 7-12, 15-19, 24-26, 28 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kazuma et al (EP 1028455A2).

Regarding claim 1, Kazuma et al disclose [see Fig. 1] A handler (system 10) [see **Note** below] for singulating at least one packaged substrate (CSP substrate 25) into a plurality of packaged semiconductor devices by using a water jet, the handler comprising: a first movable mount (transfer means 14) for moving between a loading location (transfer unit 12) and a cutting location (cutting unit 11), the first movable mount (14) adapted to [see **Note 2**] receive the at least one packaged substrate (25) at the loading location (12), the first movable mount (14) for transporting the at least one packaged substrate (25) from the loading location (12) to the cutting location (11), and the first movable mount (14) adapted to secure the at least one packaged substrate (25) [via storage area 15] thereon while the at least one packaged substrate (25) is at least partially cut at the cutting location (11); and a second movable mount (transfer means 24) for moving between the cutting location (11) and an unloading location (boarding area 23), the second movable mount (24) adapted to [see **Note 2**] receive the at least one packaged substrate (25) that is at least partially cut at the cutting location (11), the second movable mount (24) for securing the at least one packaged substrate (25) thereon while the at least one packaged substrate (25) is at least partially cut at the cutting location (11) to produce at least some of the plurality of packaged semiconductor devices (25), and the second movable mount (24) for transporting the at least some of the plurality of packaged semiconductor devices (25) from the cutting location (11) to the unloading location (23).

[**Note:** The recitation “*for singulating at least one packaged substrate into a plurality of packaged semiconductor devices by using a water jet*” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).]

[**Note 2:** Claim limitations that employ phrases of the type “adapted to” are typical of claim limitations, which may not distinguish over the prior art. It has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. See also MPEP 2111.04]

Regarding claim 7, Kazuma et al disclose at least one transport guide (rail 31) that extends from the cutting location (11), and through to the unloading section (23), wherein at least the first movable mount (14) is movably coupled to the at least one transport guide (31).

Regarding claim 8, Kazuma et al disclose at least one transport guide (31) comprises at least a pair of rails, and wherein at least the first movable mount (14) is movably coupled to the pair of rails.

Regarding claim 9, Kazuma et al disclose at least the second movable mount (24) is movably coupled to the pair of rails.

Regarding claim 10, Kazuma et al disclose the pair of rails (31) are substantially linear and extend substantially parallel to each other from the loading location (12), through the cutting location (11), and to the unloading location (23).

Regarding claim 11, Kazuma et al disclose the first movable mount (14) comprises a rotatable vacuum chuck (cassette 13a) for securing the at least one packaged substrate (25) thereto.

Regarding claim 12, Kazuma et al disclose the second movable mount (24) comprises a rotatable vacuum chuck (carrier 32) for securing the at least one packaged substrate (25) thereto.

Regarding claim 15, Kazuma et al disclose a transfer means (transfer means 40) for transferring the at least one packaged substrate (25) from the first moveable mount (14) to the second movable mount (24).

Regarding claim 16, Kazuma et al disclose the transfer means (40) comprises at least one pick and place assembly (pick up and transfer means 42 and 43) mounted to operate at the cutting location (11).

Regarding claim 17, Kazuma et al disclose a method [see **Note** below] for handling at least one packaged substrate (CSP package 25) for singulation into a plurality of packaged semiconductor devices by using a water jet, the method comprising: a) providing: a first movable mount (transfer means 14) for moving between a loading location (transfer unit 12) and a cutting location (cutting unit 11); and a second movable mount (transfer means 24) for moving between the cutting location (11) and an unloading location (boarding area 23), b) moving the first movable mount (14) from the loading location (12) to the cutting location (11) with the at least one packaged substrate (25) disposed thereon; c) cutting [via cutting means 19] the at least one packaged substrate (25) in a first reference direction (Y-axial direction) at the cutting location (11) [see col. 5, line 50 – column 6, line 9]; d) transferring the at least one packaged substrate (25) from the first movable mount (14) to the second movable mount (24); e)

cutting [via cutting means 19] the at least one packaged substrate (25) in a second reference direction (X-axial direction) [see col. 5, line 50 – column 6, line 9] different from the first reference direction, at the cutting location (11), to produce the plurality of packaged semiconductor devices (25); and f) moving the second movable mount (24) from the cutting location (11) to the unloading location (boarding section 23).

[**Note:** The recitation “*for singulating at least one packaged substrate into a plurality of packaged semiconductor devices by using a water jet*” has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).]

Regarding claim 18, Kazuma et al disclose prior to (b), loading the at least one packaged substrate (25) on the first movable mount (14).

Regarding claim 19, Kazuma et al disclose after (f), unloading the plurality of packaged semiconductor devices (25) on the second movable mount (24).

Regarding claim 24, Kazuma et al disclose (b) further comprises moving the second movable mount (24) from the cutting location (11) to the unloading location (23) with at least another previously singulated packaged substrate (25) disposed thereon.

Regarding claim 25, Kazuma et al disclose (e) further comprises unloading the at least another previously singulated packaged substrate (25) at the unloading location (23).

Regarding claim 26, Kazuma et al disclose (c) further comprises moving the first movable mount (14) in the first reference direction (X-axial direction).

Regarding claim 28, Kazuma et al disclose wherein (c) further comprises moving the second movable mount (24) in the first reference direction (X-axial direction).

Regarding claim 30, Kazuma et al disclose wherein (d) comprises picking the at least one packaged substrate (25) off the first movable mount (14) [via transfer means 40], moving the first movable mount (14) from the cutting location (11) to the loading location (12), moving the second movable mount (24) from the unloading location (23) to the cutting location (11), and placing the at least one packaged substrate (25) on the second movable mount (24).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2-6, 20-23, 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuma et al (EP 1028455A2) in view of Cole et al (WO 02/35585A1).

Regarding claims 2-6, 20-23, 27 and 29, Kazuma et al disclose [see Fig. 1] A handler (system 10) comprising: a first movable mount (transfer means 14) for moving between a loading location (transfer unit 12) and a cutting location (cutting unit 11), the first movable mount (14) adapted to secure the at least one packaged substrate (25) [via storage area 15] thereon while the at least one packaged substrate (25) is at least partially cut at the cutting location (11); and a second movable mount (transfer means 24) for moving between the cutting location (11) and an unloading location (boarding area 23). However, they do not disclose that a water jet does the cutting of the substrate. Cole et al disclose [see Figs. 3-6] an apparatus includes a fixture to align and hold a wafer (614) wherein a cutting head assembly (600) comprising a cylinder (602) to supply water at high pressure, abrasive inlet(s) (606) to supply abrasive powder, mixing tube (610) to mix the water and abrasive and fluid jet cutting nozzle (612) to cut through the wafer (614). Further, Cole et al teach that the addition of cutting head assembly is advantageous because it provides a low cost apparatus to cut dice from a wafer in order to increase the yield of dice from each wafer and reduce the unit cost of fabricating the dice. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus of Kazuma et al by adding water jet cutting tool as taught by Cole et al in order to increase the yield of dice from each wafer and reduce the unit cost of fabricating the dice.

8. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuma et al (EP 1028455A2) in view of Itasaka et al (20010043076A1).

Regarding claims 13-14, Kazuma et al disclose [see Fig. 1] A handler (system 10) comprising: a first movable mount (transfer means 14) for moving between a loading location

(transfer unit 12) and a cutting location (cutting unit 11), the first movable mount (14) adapted to secure the at least one packaged substrate (25) [via storage area 15] thereon while the at least one packaged substrate (25) is at least partially cut at the cutting location (11); and a second movable mount (transfer means 24) for moving between the cutting location (11) and an unloading location (boarding area 23). However, they do not disclose that image capture device as claimed. Itasaka et al disclose [see Figs. 20-21] image capture devices (CCD cameras 57, 58A, 58B and 60) for capturing at least one image of the at least one package substrate (semiconductor 10). Further, Itasaka et al teach that the addition of CCD cameras is advantageous because it is constructed to individually image each semiconductor package for the purpose storing position recognition data to determine whether or not the package substrate is a good device or bad device. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus of Kazuma et al by adding image capture device such as a CCD camera as taught by Itasaka et al in order to stored position recognition data to determine whether or not the package substrate is a good device or bad device.

Conclusion

Base on the above arguments and rejection, the following is being applied.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermele M. Hollington whose telephone number is (571) 272-1960. The examiner can normally be reached on M-F (9:00-4:00 EST) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on (571) 272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jermele M. Hollington/
Primary Examiner
Art Unit 2829

/J. M. H./
January 7, 2009